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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,359

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EXAMINER

PECHE, JORGE O

ART UNIT

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3664

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,359	Applicant(s) SALMON ET AL.	
	Examiner Jorge O. Peche	Art Unit 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/11/2007 and 06/19/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a memory, information processing means, first trajectory prediction means, first means of topographic calculation, first comparison means, second trajectory prediction means, second calculation means, second comparison means, an alarm means, and other means for must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding **claims 17-18**, since the disclosure merely discloses an onboard terrain anticollision device for aircraft as "information processing means for", "first trajectory prediction means for, " "first means of topographic calculation for," "first comparison means for, " second trajectory prediction means for," second calculation means for," "second comparison means for," alarm means linked to said processing means for , " and other means for ; therefore, the disclosure fails enablement requirement because it does not recite the particular structure (i.e. an algorithm) that performs the function and to which the means-

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plus-function claim is necessarily limited. As presently set forth, in cases involving a computer-implemented invention in which the inventor has invoked means-plus-function claiming, the structure disclosed in the specification is required to be more than simply a general purpose computer or microprocessor. Because general purpose computers can be programmed to perform very different tasks in very different ways, simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to "the corresponding structure, material, or acts" that perform the function. See Aristocrat Techs. Austl. Pty v. Int'l Game Tech., ___ F.3d ___, 2008 U.S. App. LEXIS 6472, at *10 (Fed. Cir. Mar. 28, 2008). Thus, one skilled in the art cannot practice the invention without undue experimentation because the claim language simply describes the function to be performed, not the algorithm by which it is performed.

Other claims are also rejected based on their dependency of the defected parent claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding **claims 17-18**, “information processing means for”, “first trajectory prediction means for”, “first means of topographic calculation for”, “first comparison means for”, “second trajectory prediction means for”, “second calculation means for”, “second comparison means for”, alarm means linked to said processing means for “ and other means for are treated under 35 USC 112, sixth paragraph. The specification fails to set forth the structure that corresponds to the claimed function. The applicant defines, in the specification, an onboard terrain anticollision device for aircraft (i.e.” information processing means for”, “first trajectory prediction means for”, “first means of topographic calculation for”, and other means) based on what functions it performs and fails to define any specifics with regard to the onboard terrain anticollision device. “If the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee has not paid the price for use of the convenience of broad claiming afforded by 112, sixth paragraph but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification. If one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.” See Biomedino, LLC v Waters Technologies Corporation (Fed Cir, 2006-1350, 6/18/2007).

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In addition, Applicant's invention claims a means for performing a particular function and then to disclose general purpose computer (i.e. an onboard terrain anticollision device) as the structure designed to perform that function amounts to pure functional claiming. "Because general purpose computers can be programmed to perform very different tasks in very different ways, simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to the corresponding structure, material or acts that perform the function, as required by section 112 paragraph 6." See Aristocrat Techs. Austl. Pty v. Int'l Game Tech., ___ F.3d ___, 2008 U.S. App. LEXIS 6472, at *10 (Fed. Cir. Mar. 28, 2008). Thus, since the means plus function language of the claims lack sufficient disclosed structure under 112, sixth paragraph; therefore, the claims are indefinite under 112, second paragraph.

Other claims are also rejected based on their dependency of the defected parent claims.

Claims **19** and **22** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **19** recites the limitation "the first flight time" and "the second predicted trajectory" in page 5, lines 1-2. There is insufficient antecedent basis for these limitations in the claim. Claim 17 does not provide explicit antecedent basis for the above term.

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Claim **22** recites the limitation "the first part of the trajectory" and "the second part of the trajectory" in page 5, line 15. There is insufficient antecedent basis for these limitations in the claim. Claims 17 and 21 do not provide explicit antecedent basis for the above term.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-20 and 25 - 32 are rejected under 35 U.S.C. 102(b) as being unpatentable over **Meunier (Patent No.: US 6,480,120)**.

Regarding **claims 17, 25, and 28** Meunier discloses an airborne terrain collision prevention device with prediction of turns comprising:

- memory including topographic data of the terrain and/or of the obstacles overflown (*memory (70) and memory (71) and terrain database (3)*); and information processing means (*anti-collision calculations (4) / control unit (90)*) including (see col. 4, lines 16-55; col. 5, lines 4-10; col. 1, lines 16-19; Figures 1-2 and 4A-7):

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- an input for receiving flight parameters (*filling system and updating, GPS, INU and radio-altimeter signals*) (see col. 3, line 18 – col. 4, line 15; col. 1, lines 21-24; Figures 1-4B);
- first trajectory prediction means (*consolidated flight parameters (2)*) for establishing on the basis of said flight parameters (*GPS, INU and radio-altimeter signals*) at least one first profile or a first safety surface corresponding to a first predicted trajectory (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals*) (see Figures 1-4B);
- first means of topographic calculation (*terrain file / terrain database (3)*) for establishing on the basis of said flight surface parameters (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals*) at least one first profile or a first topographic constituted on the basis of the topographic data of the terrain and/or of the obstacles overflowed (*terrain file / terrain database (3) output signal*) (see col. 4, lines 16-65; Figures 1-2, 4A and 7);
- first comparison means (*TPM1 (411) / VCM1 (421)*) for establishing at least one first comparison between said first profile or said first safety surface (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals*) and a first profile or a first topographic surface (*terrain file / terrain database (3) output signal*) for determining at least one first risk of collision of the aircraft with the ground (*vertical plane VCM1 output signal*); wherein at least one of the first comparison means or second comparison means comprise a criticality indicator of the risk of collision

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with the terrain (see col. 4, lines 16-65; col. 9, lines 39 – 67; Figures 1-2, 4A and 7);

- second trajectory prediction means (*consolidated flight parameters (2)*) for establishing on the basis of the flight parameters (*GPS, INU and radio-altimeter signals*) a second profile or a second safety surface termed the immediate safety surface corresponding to a second predicted trajectory (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals; second output to TPM2/HCM2*) (see col. 3, line 18 – col. 4, line 15; col. 9, lines 39 – 67; Figures 1-4B and 7);

- second calculation means (terrain file / terrain database (3)) for establishing on the basis of the flight parameters (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals*) a second profile or a second topographic surface constituted on the basis of the topographic data of the terrain and/or of the obstacles overflowed (terrain file / terrain database (3) output signal; *second output to TPM2/HCM2*) (see col. 4, lines 16-65; col. 9, lines 39 – 67; Figures 1-2, 4A and 7);

- second comparison means (TPM2 (412) / HCM2 (422)) for establishing a second comparison between said second profile or said second safety surface (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals; second output to TPM2/HCM2*) and the second profile or the second topographic surface (terrain file / terrain database (3) output signal; *second output to TPM2/HCM2*) for determining a second risk of collision of the aircraft with the ground (*HCM2 output*

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signal); wherein at least one of the first comparison means or second comparison means comprise a criticality indicator of the risk of collision with the terrain (see col. 4, lines 16-65; col. 9, lines 39 – 67; Figures 1-2, 4A and 7);

- alarm means (alarm decision unit (5)) linked to said processing means (*anti-collision calculations (4) / control unit (90)*) for establishing at least one first state of first alarm (*caution terrain, caution terrain ahead, avoid terrain and/or pull up*) as a function of the results of the first comparison (*TPM1 (411) / VCM1 (421)*) and a second state termed the second alarm state (*caution terrain, caution terrain ahead, avoid terrain and/or pull up*) as a function of the results of the second comparison (*TPM2 (412) / HCM2 (422)*), different from the first alarm state (first alarm: caution terrain ahead and second alarm: pull up); wherein the alarms are of audible or visual type (see col. 4, lines 16-65; col. 6, line 41 – col. 7, line 46; col. 9, lines 39 – 67; Figures 1-2, 4A, 7 and 10; table 1 and related text).

Regarding **claim 18**, Meunier discloses an airborne terrain collision prevention device with prediction of turns, wherein said information processing means further comprises:

- third trajectory prediction means (*consolidated flight parameters (2)*) for establishing at least on the basis of the flight parameters *GPS, INU and radio-altimeter signals*) a third profile or a third

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- safety surface corresponding to a third predicted trajectory(*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals; third output to TPM3/HCM3*) (see col. 3, line 18 – col. 4, line 15; col. 9, lines 39 – 67; Figures 1-4B and 7);
- third means (*terrain file / terrain database (3)*) of topographic calculation for establishing at least on the basis of said flight parameters (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals*) a third profile or a third surface constituted on the basis of the topographic data of the terrain and/or of the obstacles overflown (*terrain file / terrain database (3) output signal; third output to TPM3/HCM3*) (see col. 4, lines 16-65; col. 9, lines 39 – 67; Figures 1-2, 4A and 7);
 - third comparison means (*TPM3 (413) / HCM3 (423)*) for establishing at least one third comparison between said third profile or said third safety surface (*consolidated flight parameters (2) output signal, e.g. LGZ and HRS signals; third output to TPM3/HCM3*) and a third profile or a third topographic surface (*terrain file / terrain database (3) output signal; third output to TPM3/HCM3*) for determining at least one third risk of collision of the aircraft with the ground (*HCM2 output signal*) (see col. 4, lines 16-65; col. 9, lines 39 – 67; Figures 1-2, 4A and 7);
 - alarm means (*alarm decision unit (5)*) linked to said processing means for establishing (*anti-collision calculations (4) / control unit*

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(90)) at least one state termed the prealarm state (*caution terrain, caution terrain ahead, avoid terrain and/or pull up*) as a function of the results of the third comparison (*TPM3 (413) / HCM3 (423)*) (see col. 4, lines 16-65; col. 6, line 41 – col. 7, line 46; col. 9, lines 39 – 67; Figures 1-2, 4A, 7 and 10; table 1 and related text).

Regarding **claim 19**, Meunier discloses an airborne terrain collision prevention device with prediction of turns, wherein the first flight time (*VT5 – 5 second*) of the second predicted trajectory (*trajectory between VT5 and VRP*) can has duration of less than 3 seconds; VRP can be a trajectory point at 2 second after VT5 (see col. 6, lines 34 – 67; Figures 8B -10).

Regarding **claim 20**, Meunier discloses an airborne terrain collision prevention device with prediction of turns wherein the first alarm is of the vertical avoidance alarm type (*pull up alarm / standard vertical recovery manoeuver*) and the second alarm is of the transverse avoidance alarm type (*avoid terrain alarm/ standard horizontal avoidance manoeuver*), the vertical avoidance alarm corresponding for the pilot to a vertical avoidance maneuver and the transverse avoidance alarm corresponding for the pilot to a transverse avoidance maneuver (see col. 6, line 41 – col. 7, line 46; table 1, Figures 8A - 10).

Regarding **claims 26-27** refer **claims 17-20**.

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Regarding **claims 29-32** refer **claims 17-20**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Meunier (Patent No.: US 6,480,120)** in view of **Applicant's background of the invention**

Regarding claims **21-24**, Meunier's invention is silent regarding the claim limitations

However, Applicant's background of the invention teach wherein the first, the second or the third safety surface or profile comprise two parts: a first part corresponding to a first flight time (T1), dependent on a prediction of the trajectory in progress calculated on the basis of an origin (O) taken under the aircraft; a second part corresponding to a second flight time (T2) following the first flight time, dependent on a prediction of a vertical avoidance trajectory; wherein the parameters defining the first part of the trajectory or the second part of the trajectory of the immediate safety surface can be substantially different from the parameters defining the other safety surfaces and wherein the first, the

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second or the third safety surface or profile are bounded laterally by a left limit (T_G) and a right limit (T_D), said limits being defined essentially by a lateral margin (ML) and at least one angle of left lateral aperture (θ_G) and at least one angle of right lateral aperture (θ_D); herein the lateral margins or the angles of right and left lateral aperture of the limit of the immediate safety surface or profile are substantially different from the lateral margins or from the angles of right and left lateral aperture of the limits of the other predicted surfaces (see page 4, line 1 - page 6, line 30; Figure 1).

Given the teaching of Applicant's background of the invention, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Meunier's reference to incorporate a first/second flight time, a left/right limit and a right/left aperture within the airborne terrain collision prevention device of Meunier's invention to determine an aircraft trajectory.

Doing so would enhance airborne terrain collision prevention device capable not only to aid air navigation and air safety, but also to determine an aircraft trajectory.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge O. Peche whose telephone number is (571)270-1339. The examiner can normally be reached on 8:30 am - 5:30 pm Monday to Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi H. Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jorge O Peche/
Examiner, Art Unit 3664
/KHOI TRAN/
Supervisory Patent Examiner, Art Unit 3664